NetCommWireless

Data Stream Manager

Technical Support Guide

Please note: This document is subject to change without notice.

DOCUMENT VERSION	DATE
1.0 - Initial document release	28 October 2015

Table 1 - Document Revision History

Table of contents

Introduction

The data stream manager feature of NetComm Wireless routers provides a method of transporting data from one point of the router to another. These points are called “Endpoints” and are origin or destination points of data. They may be virtual (e.g. TCP server) or physical (e.g. Serial port). The data stream manager opens up new uses and possibilities of the router, for example, allowing you to send the GPS coordinates of the router to a TCP Server so that you can monitor its location if it is installed in a vehicle.

Below is a full list of endpoints on the NetComm Wireless platform. Some endpoint types are not available on certain devices due to a lack of specific hardware to enable the feature, e.g. a device lacking a serial port does not have the ability to create endpoints that require one.

#	ENDPOINT TYPE	DESCRIPTION
1	Serial port (generic)	This is a basic serial port endpoint with default settings of Baud: 9600, Parity: None, Data bits: 8, Stop bits: 1
2	TCP server	Runs a TCP server on the router. Port number, keepalive settings and maximum number of clients can be configured
3	TCP client	Runs a TCP client on the router. IP address, port number, keepalive settings and retry timeout can be configured.
4	UDP server	Runs a UDP server on the router. Port number and maximum number of clients can be configured.
5	UDP client	Runs a UDP client on the router. IP address, port number and retry timeout can be configured.
6	GPS data (for devices with GPS receiver)	Specifies the GPS module as an endpoint.
7	User defined executable	The user defined executable accepts any command that you can enter at the command-line interface. This provides the ability to write a script and execute it as an endpoint.
8	RS232 port	This is a serial port identical to the Serial port (generic) endpoint except that prior to commencement of the data stream process, the port is initialized into RS232 mode.
9	RS485 port	This is a serial port identical to the Serial port (generic) endpoint except that prior to commencement of the data stream process, the port is initialized into RS485 mode and at termination of the data stream, it is set back to the default RS232 mode.
10	RS422 port	This is a serial port identical to the Serial port (generic) endpoint except that prior to commencement of the data stream process, the port is initialized into RS422 mode and at termination of the data stream, it is set back to the default RS232 mode.
11	Modem emulator	This is the same as Serial port (generic) but it has more configuration options for use with legacy hardware.
12	PPP server	This is a router terminated PPP server which allows functionality for dial-up PPP clients.
13	IP modem	This endpoint provides modem emulation and tunneling via TCP/UDP. It replaces PAD mode on older NetComm Wireless routers.
14	Circuit switched data (CSD)	Allows circuit switched data calls via the 3G/4G module and mobile networks.
15	TCP connect-on-demand	The TCP connect-on-demand endpoint allows data to be buffered and then send to a TCP server when the buffer has been filled.

This document provides examples of some common configurations of the data stream manager to assist you in setting it up for your own purposes. For more information about individual endpoint types, please refer to your product’s user guide.

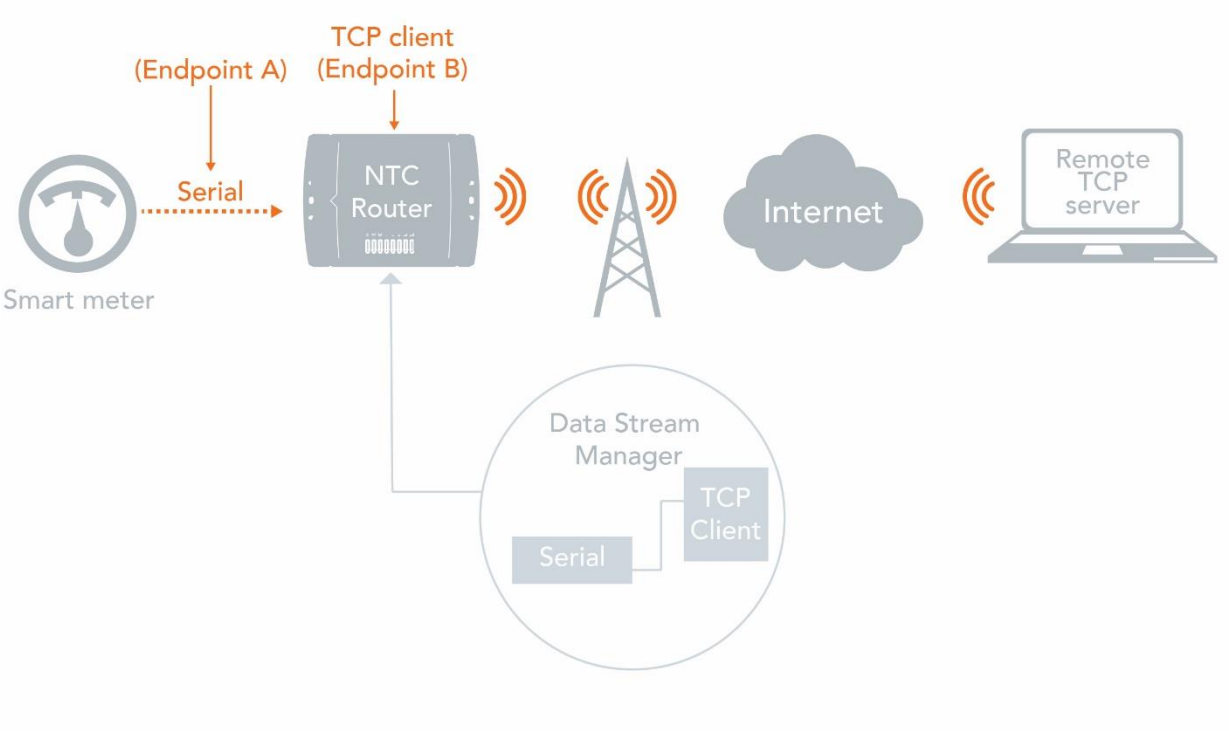
Applicable devices

This document is applicable to the following NetComm Wireless devices:

- NTC-140
- NTC-140W
- NTC-6200
- NWL-15
- NWL-25
- NTC-30WV
- NTC-40WV

Serial port to TCP client

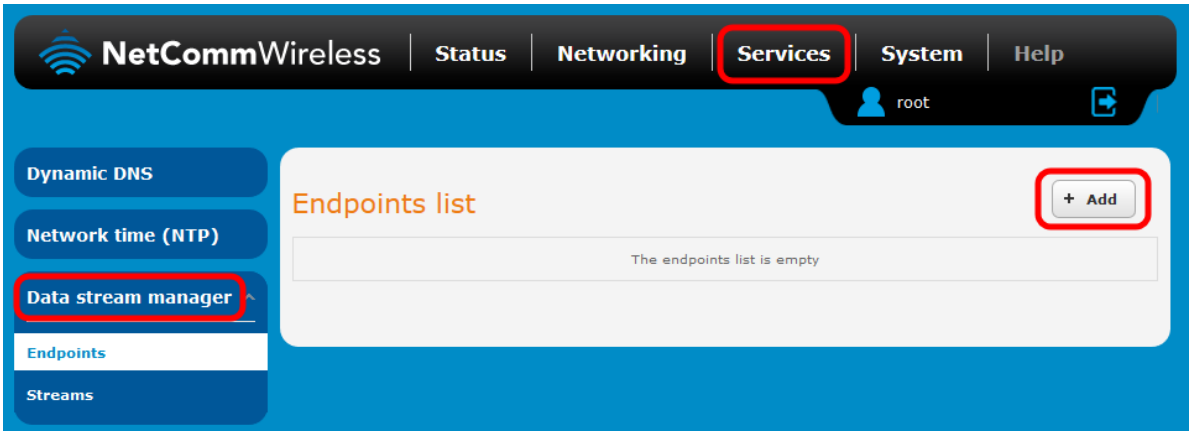
A very common use of the data stream manager is to send data received by the serial port to a remote TCP server. This is often the case when a NetComm Wireless router is connected to a smart meter via the serial port. The diagram below illustrates the scenario.



The data received on the serial port (endpoint A) is converted to IP data and traverses through a TCP client (endpoint B) on the router to a remote TCP server.

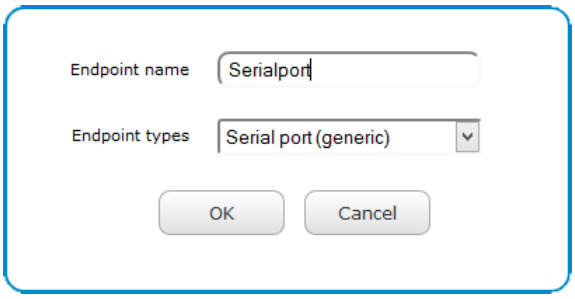
Creating the endpoints

1. Select **Services**, then **Data stream manager** on the left. The Endpoints list is displayed.
2. Click the **+Add** button.

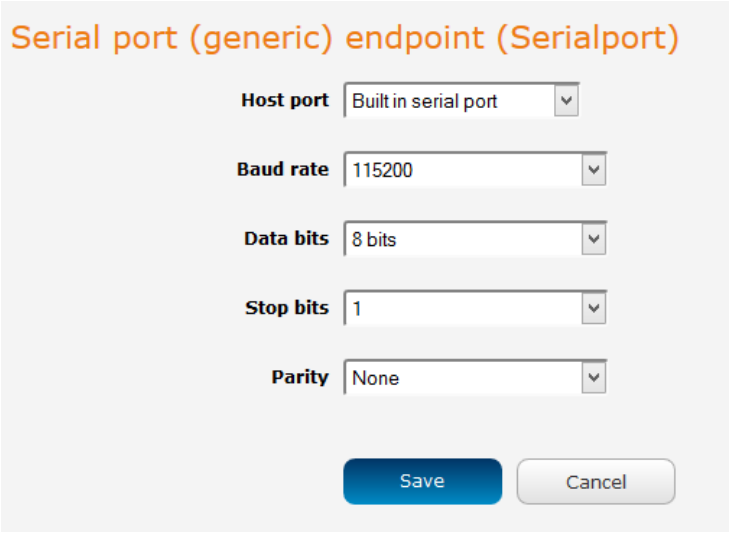


A pop-up window appears.

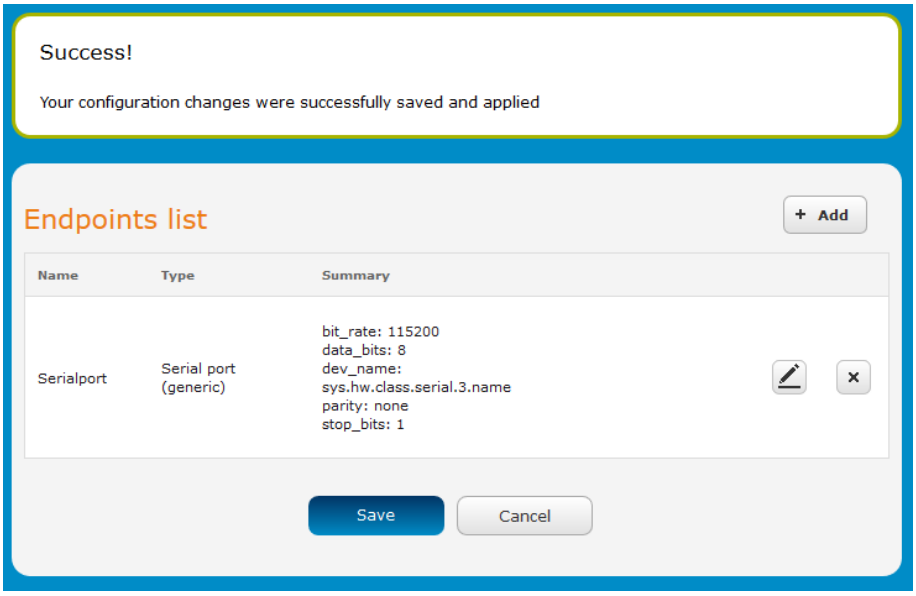
3. Enter a name for the Endpoint. In this case, we are creating the Serial port endpoint first and have called it “Serialport”. The name is used to easily identify the endpoints in a list, so make it meaningful to you.



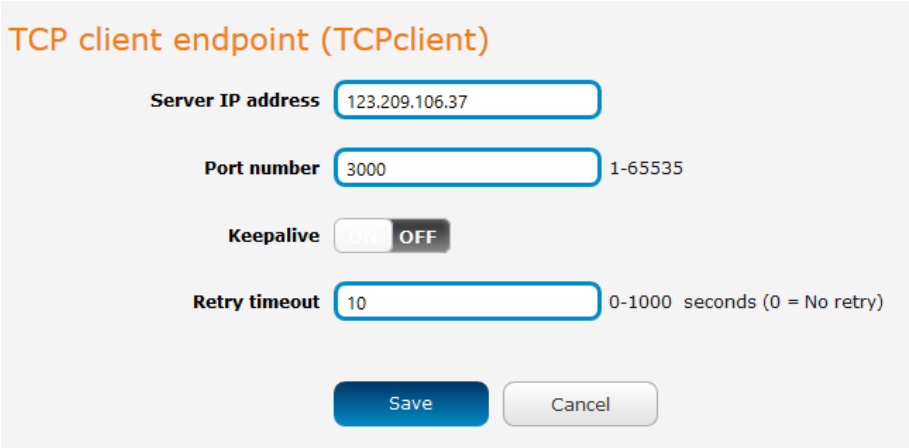
4. In the **Endpoint types** drop down list, ensure that **Serial port (generic)** is selected. Click the **OK** button. Serial port endpoint configuration options are displayed.



5. Configure the settings of the serial port as required by your connected device, then click the **Save** button. In this example, we are using the default settings which are commonly used serial port settings. The Endpoints list is displayed again with a success message at the top of the screen.

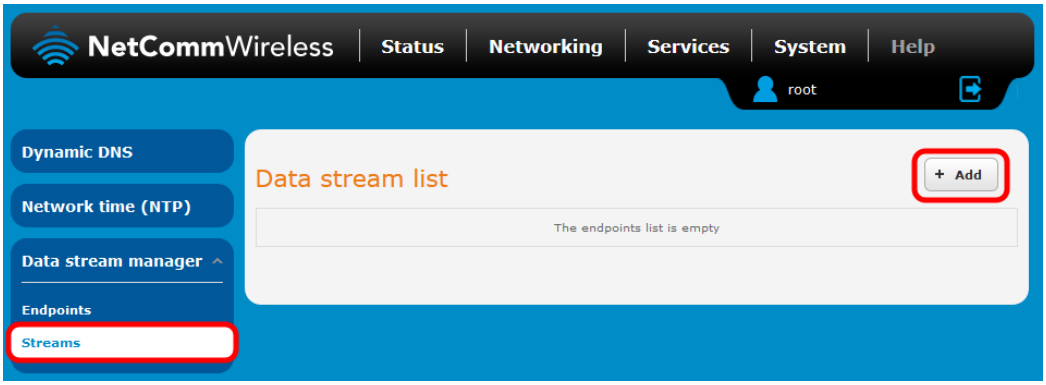


6. Repeat steps 2 through 5 for the TCP client endpoint type. The screenshot below shows an example configuration.

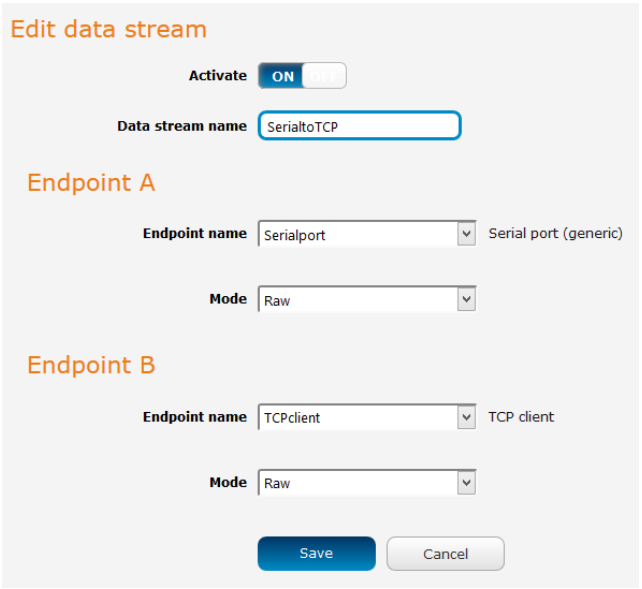


Configuring the data stream

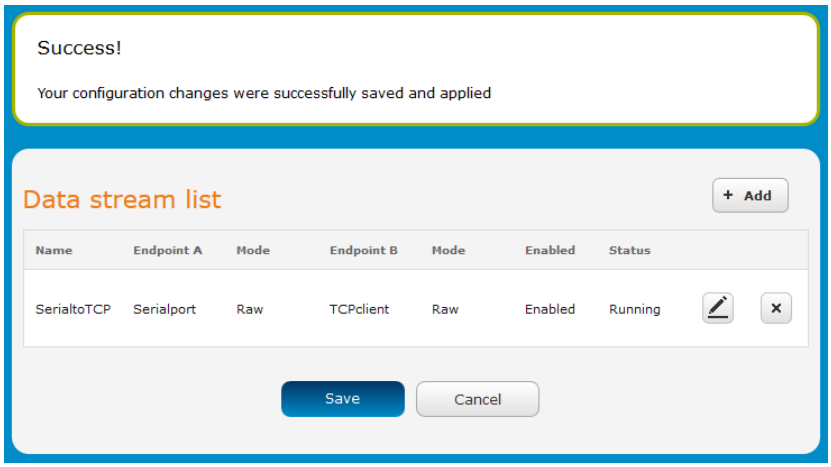
1. When the endpoints have been created, select the **Streams** sub-menu on the left side of the screen, then click the **+Add** button.



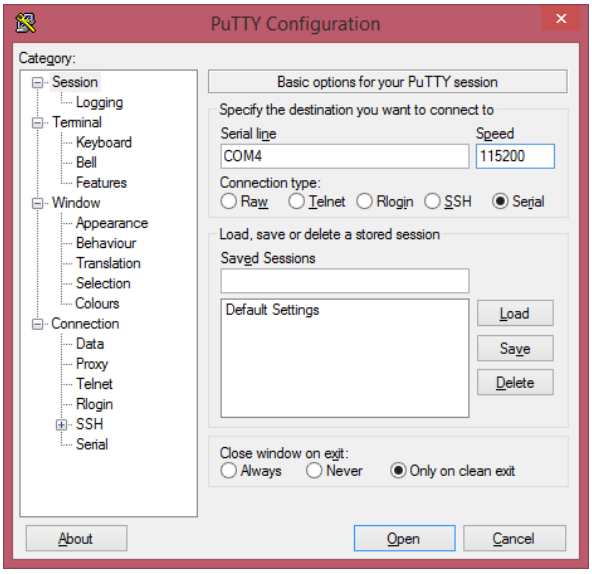
2. In the **Data stream name** field, enter a name for the stream. This is a string which is used to identify the data stream in the list. In this example, we have selected to send raw data from the serial port to a TCP client on the router which outputs the raw data. The serial port has several supported modes including Modbus server gateway RTU/ASCII and Modbus client agent RTU/ASCII.



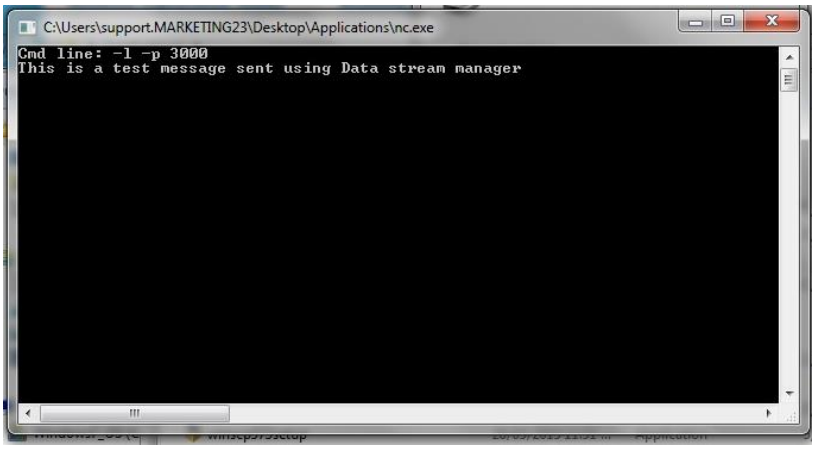
When you have entered all the details, click the **Save** button. The stream is created and applied. The data stream is now ready for use.



To test that the data stream is working, connect a Serial to USB cable between your computer and the router. Open up a terminal emulator such as PuTTY and connect using the COM port assigned to the Serial to USB connection.

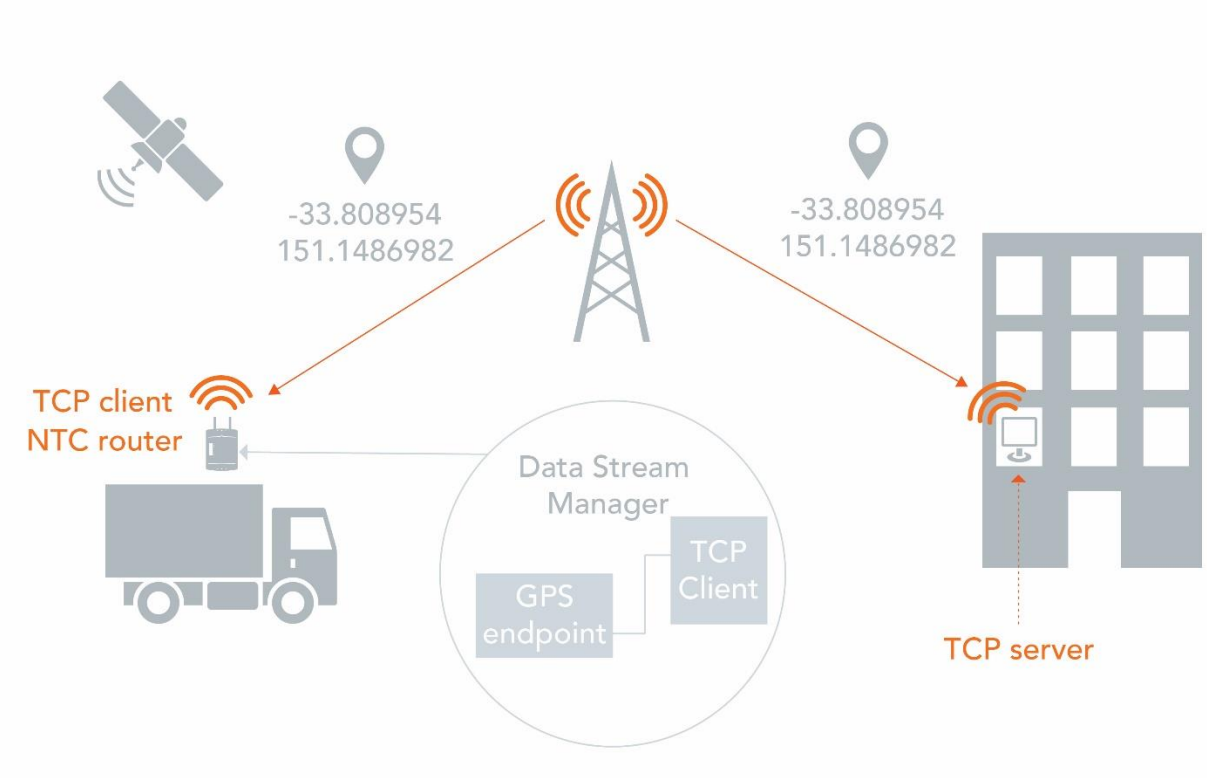


When the connection is established, any text entered into the terminal window is sent to the remote TCP server, as shown below.



GPS to TCP client

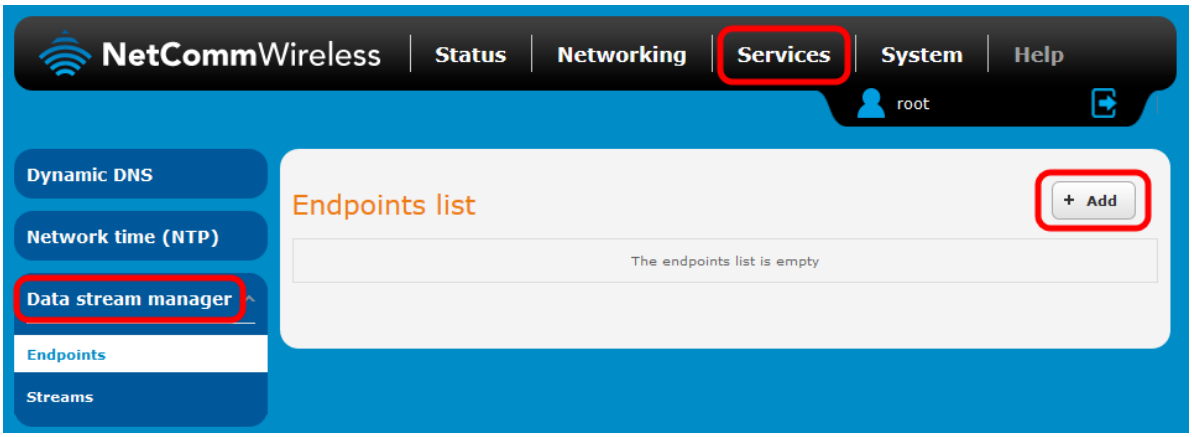
Another common use of the data stream manager is to send the GPS coordinates of the router to a remote TCP server. When the router is mounted in a vehicle, this is useful for monitoring the movements of the vehicle. The diagram below illustrates the scenario.



The GPS data is sent as raw (NMEA format) data and traverses through a TCP client (endpoint B) on the router to a remote TCP server. The GPS data can then be manipulated on the receiving end to plot the location on a map.

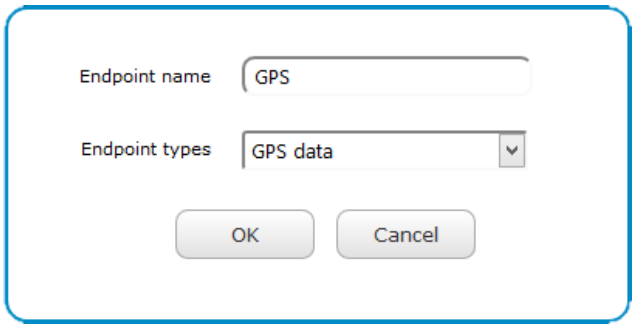
Creating the endpoints

1. Select **Services**, then **Data stream manager** on the left. The Endpoints list is displayed.
2. Click the **+Add** button.

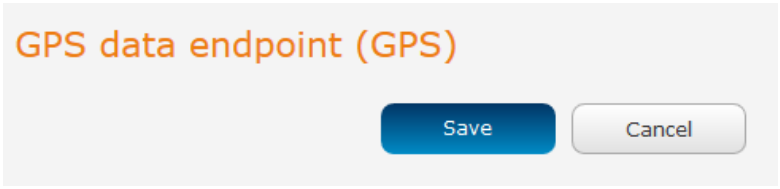


A pop-up window appears.

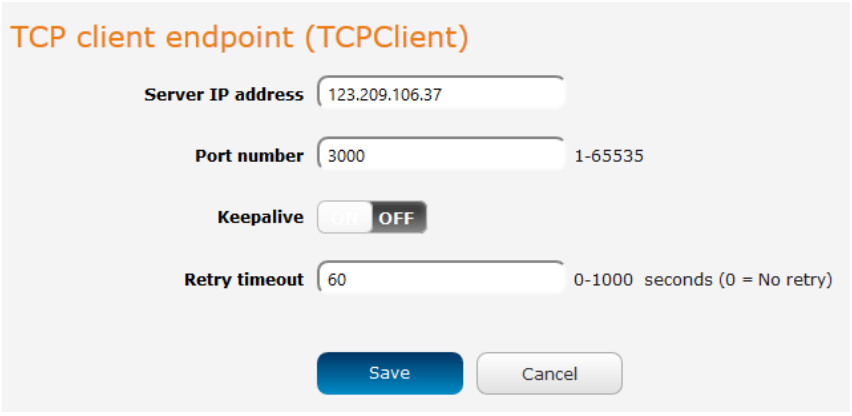
3. Enter a name for the Endpoint. In this case, we are creating the GPS endpoint first and have called it “GPS”. The name is used to easily identify the endpoints in a list, so make it meaningful to you.



4. The GPS endpoint has no configurable options. Click the **Save** button to continue.

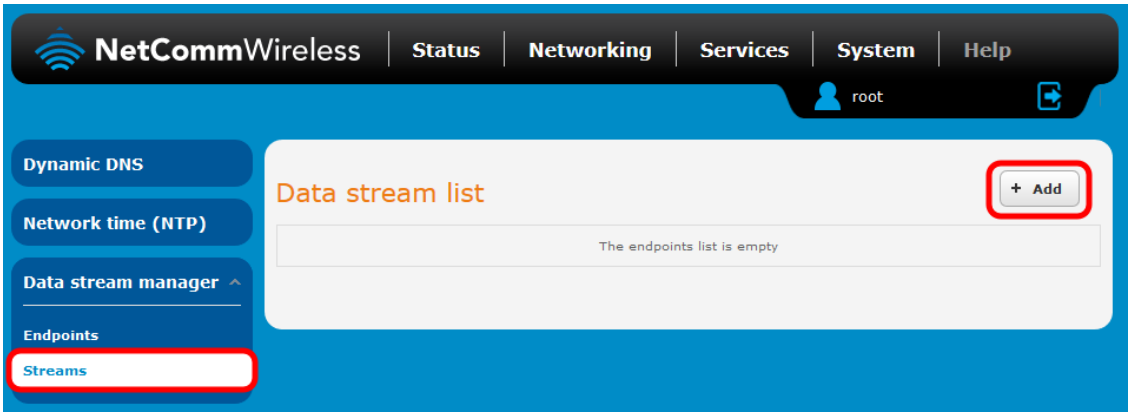


5. Repeat steps 2 and 3 for the TCP client endpoint type. The screenshot below shows an example configuration.

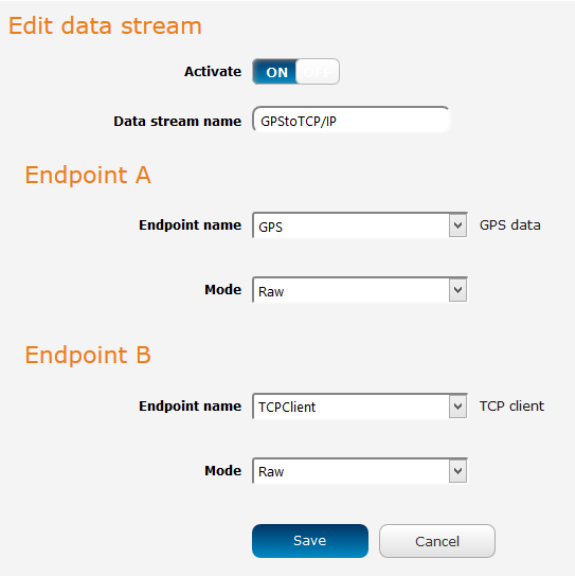


Configuring the data stream

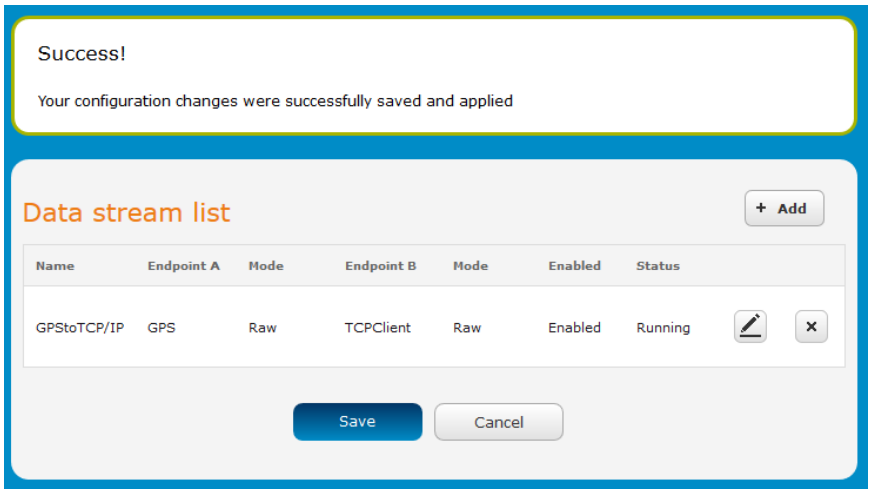
1. When the endpoints have been created, select the **Streams** sub-menu on the left side of the screen, then click the **+Add** button.



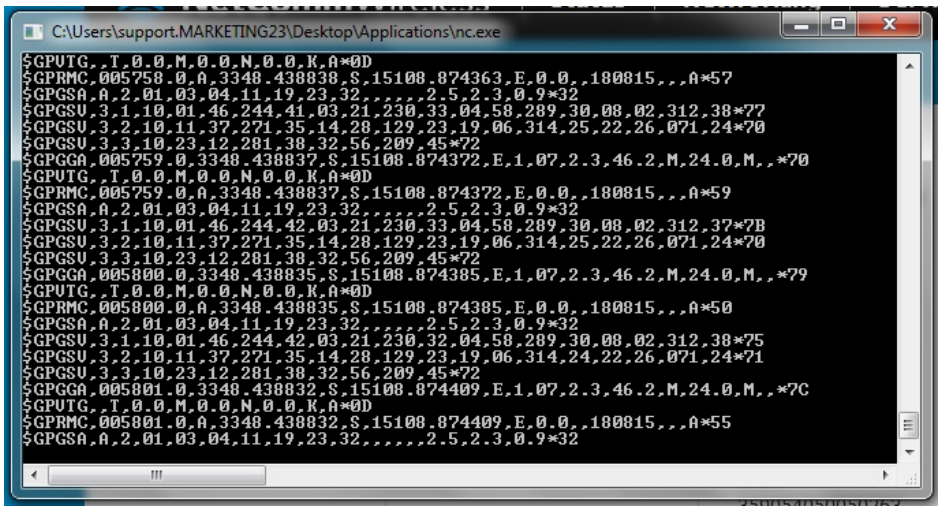
2. In the **Data stream name** field, enter a name for the stream. This is a string which is used to identify the data stream in the list. In this example, we have selected to send raw GPS data from built-in GPS to a TCP client on the router which sends the data to a remote TCP server.



When you have entered all the details, click the **Save** button. The stream is created and applied. The data stream is now ready for use.



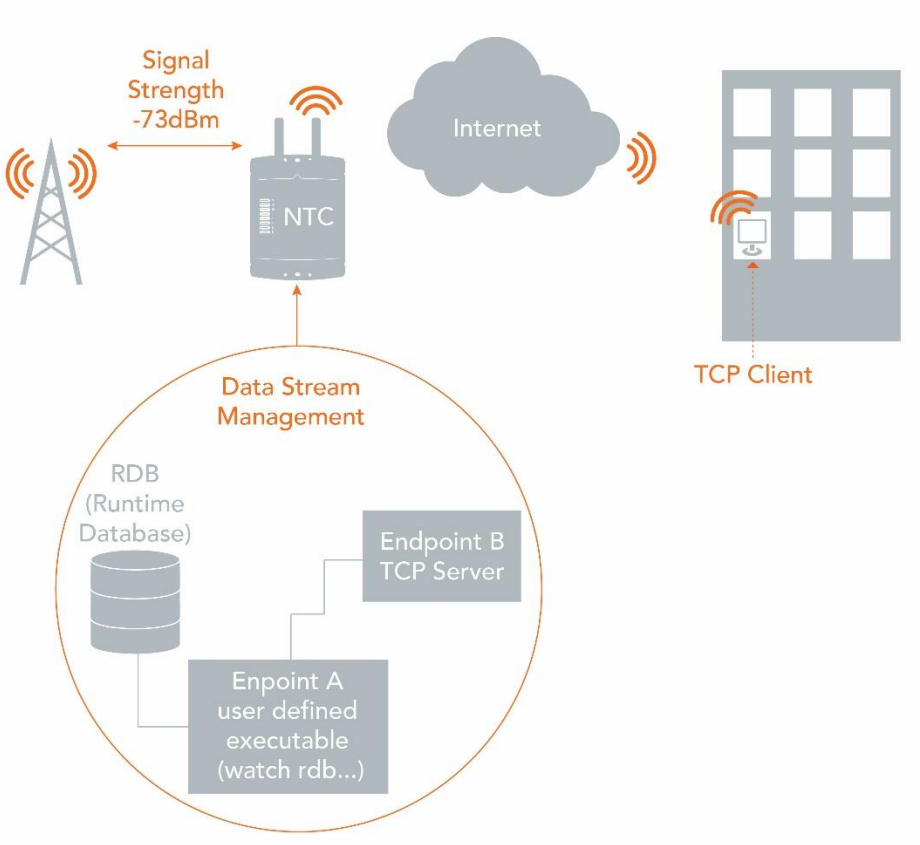
To test that the data stream is working, check your TCP server's output.



You can run the TCP server locally connected to the router or remotely. From here, you can take this raw GPS data and use it to plot the router's location on a map.

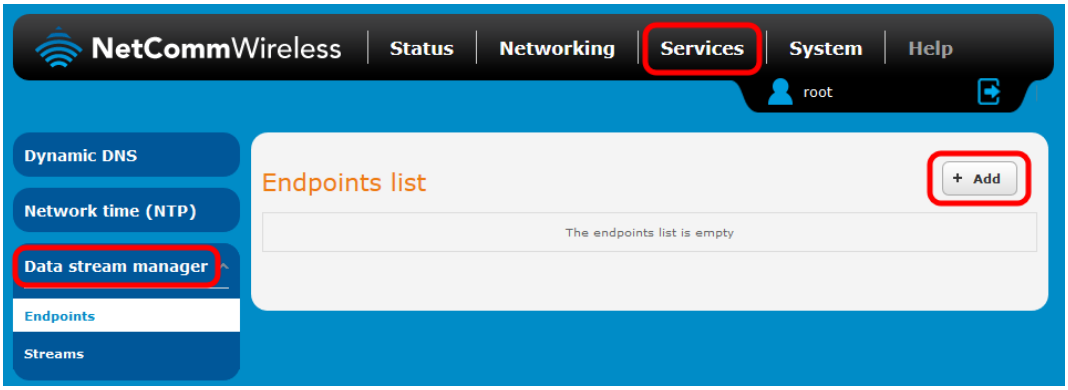
User defined executable to TCP server

For even greater detail about virtually any setting on the router, you can use the User defined executable endpoint to specify a command and RDB variable on the router. This gives great flexibility and power. In this example, we will show how to configure the router to send the signal strength reading to a TCP server running on the router.



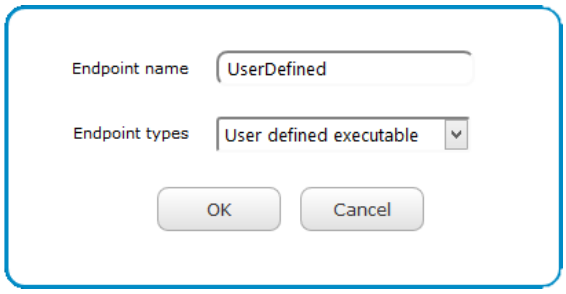
Creating the endpoints

1. Select **Services**, then **Data stream manager** on the left. The Endpoints list is displayed.
2. Click the **+Add** button.



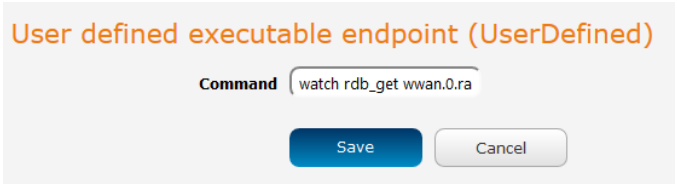
A pop-up window appears.

3. Enter a name for the Endpoint. In this case, we are creating the User defined executable (UDE) endpoint first and have called it “UserDefined”. The name is used to easily identify the endpoints in a list, so make it meaningful to you.



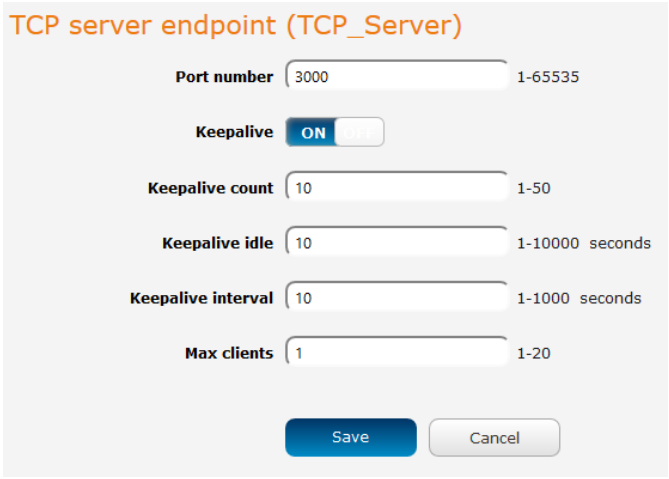
4. Enter the command you would like to use. You can use this field to enter any command you would use when connected to the router via telnet, including calling scripts to perform whatever task you wish.

   Here we have entered the command to watch the relevant RDB variable that stores the device's signal strength:
   `watch rdb_get wwan.0.radio.information.signal_strength`



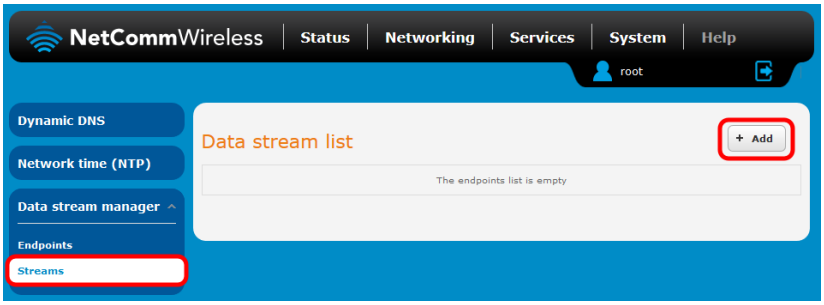
   Click the **Save** button when you have entered the desired command and its parameters.

5. Repeat steps 2 and 3 for the TCP server endpoint type. The screenshot below shows an example configuration.

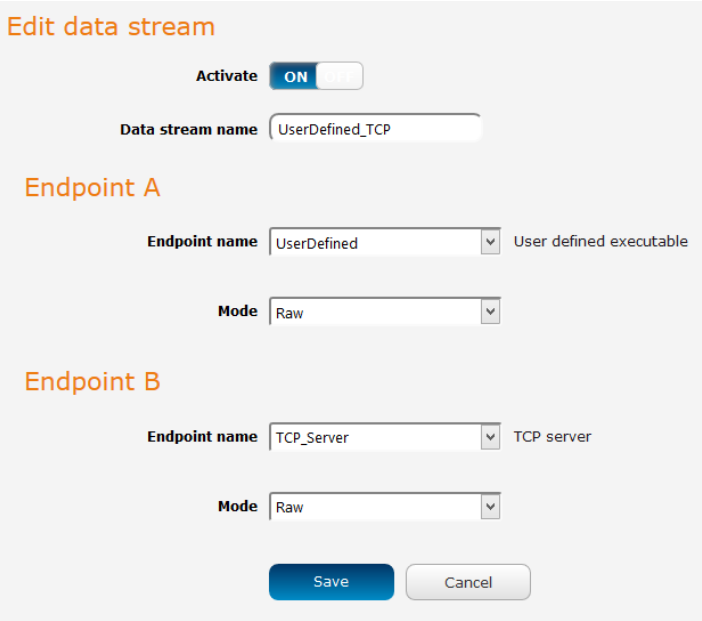


Configuring the data stream

1. When the endpoints have been created, select the **Streams** sub-menu on the left side of the screen, then click the **+Add** button.



2. In the **Data stream name** field, enter a name for the stream. This is a string which is used to identify the data stream in the list. In this example, we have selected to run an executable which outputs to a TCP server.



3. To test that the stream is working, telnet to the WAN IP address of the router on the chosen port. In this case, we have used telnet to connect to the router on port 3000 using the external IP address of 120.157.43.200. When connected, the signal strength is displayed on the screen and updated every 2 seconds by default.